FOR QUALITY & EXCELLENCE IN HIGHER EDUCATION
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# BANGALORE UNIVERSITY
## DEPARTMENT OF CIVIL ENGINEERING

Phone Off: 080-22961935 / 1946
E-mail: centrans9@gmail.com

JNANA BHARATHI
BANGALORE - 560 056

BUB/CTE/2015-16/ **Date: 08-05-2015**

**1. TESTING OF FINE AGGREGATES:**

**Sub**: Testing of Fine Aggregates.

{Project*: Improvements to Roads and Drains in BB Nagara Cross roads Kodigehalli in lieu of improvements to roads and drains in (Pooviah Residence) and providing CC Road at (Shivananda and Muniraju Residence) Maruthinagara Kotihosahalli in Ward No.08 Kodigehalli Sub-Division}

**Ref.**: Letter No.AEE/BN/QC/88/2015-16 dated 04-05-2015

Sample supplied to lab by: Assistant Executive Engineer,
Kodigehalli Sub-Division,
BBMP, Bangalore.

Name of the Contractor/Agency*: Sri.R.Vijyakumar, Contractor, Bangalore.

**TABLE - 1.1 : SIEVE ANALYSIS :**

| IS Sieve Size, mm | Percentage Passing | Specification as Per IS: 383-1970(Reaffirmed 2002) Percentage Passing | | | Remarks |
|---|---|---|---|---|---|
| | | Zone-I | Zone-II | Zone -III | |
| 04.75 | 97.50 | 90-100 | 90-100 | 90-100 | The Sample Conforms to Grading **Zone-II** |
| 02.36 | 86.00 | 60-95 | 75-100 | 85-100 | |
| 01.18 | 68.00 | 30-70 | 55-90 | 75-100 | |
| 600. mic | 37.10 | 15-34 | 35-59 | 60-79 | |
| 300.mic | 19.00 | 5-20 | 8-30 | 12-40 | |
| 150.mic | 3.00 | 0-10 | 0-10 | 0-10 | |

**TABLE 1.2 ;**

| Sl No | Test Conducted | Sample | Results | Requirements as Per IS. Specification IS :383-1970 (Reaffirmed 2002) |
|---|---|---|---|---|
| 1 | Silt Content | 001 | 1.45% | Not more than 8% |
| 2. | Specific Gravity | ---- | 2.58 | ------- |

* As furnished by Client.

The Results relate only to the items tested.

G.R. HARISH
Professor
Department of Civil Engineering,
Jnana Bharathi Compus
BANGALORE UNIVERSITY
Bangalore-560 056.



Verified

8/5/15

Dr. MANJESH .L
ME (Civil Engg .), Ph D MISTE.MIRC
Associate Professor
Department of Civil Engineering
Bangalore University Jnanabharathi Campus
BANGALORE- 560 056
e- mail. manjeshl@yahoo.com

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Professor
Department of Civil Engineering,
Jnana Bharathi Compus
BANGALORE UNIVERSITY
Bangalore-560 056.



Verified

Dr. MANJESH .L
ME (Civil Engg ), Ph D MISTE.MIRC
Associate Professor
Department of Civil Engineering
Bangalore University Jnanabharathi Campus
BANGALORE- 560 056
e- mail: manjeshl@yahoo.com

Phone Off: 080-22961935 / 1946
E-mail: centrans9@gmail.com

**BANGALORE UNIVERSITY**
**DEPARTMENT OF CIVIL ENGINEERING**

**JNANA BHARATHI**
**BANGALORE - 560 056**

BUB/CTE/2015-16/

## 1. TEST REPORT ON CEMENT:

**Date: 13-05-2015**

**Sub:** Testing of 53 Grade Cement Sample (IS 12269-1987).
{Project*: Improvements to Roads and Drains in BB Nagara Cross roads Kodigehalli in lieu of improvements to roads and drains in (Pooviah Residence) and providing CC Road at (Shivananda and Muniraju Residence) Maruthinagara Kotihosahalli in Ward No.08 Kodigehalli Sub-Division}

**Ref.**: Letter No.AEE/BN/QC/88/2015-16 dated 04-05-2015

Sample supplied to lab by: Assistant Executive Engineer,
Kodigehalli Sub-Division,
BBMP, Bangalore.

Name of the Contractor/Agency*: Sri.R.Vijyakumar, Contractor, Bangalore.

### PHYSICAL TESTS ON CEMENT

Brand* : Birla
Grade * : 53
Type * : OPC
Date : 05-05-2015 to 12-05-2015

| SL No | Name of Test | Results | Requirements as per IS 12269-1987 |
|---|---|---|---|
| | | Cement Sample | |
| 1 | Initial setting time | **150min** | Shall not be less than 30 min |
| 2 | Final setting time | **260 min** | Shall not be more than 600 min |
| 3 | Fineness (by dry sieving on IS 90 micron sieve) | **2.6%** | Not to exceed 10.0% |
| 4 | Soundness test(by Le-Chatelier's method) | **1.50 mm** | Shall not be more than 10 mm |
| 5 | Compressive strength<br>a) 3 days (average of three results)<br>b) 7 days ( average of three results) | **29.00N/ Sq mm**<br>**41.30 N/Sq mm** | Shall not be less than 27 N/Sqmm<br>Shall not be less than 37N/Sqmm |

* As furnished by Client.
The Results relate only to the items tested.

G.R. HARISH
Professor
Department of Civil Engineering
Jnana Bharathi Compus
BANGALORE UNIVERSITY
Bangalore-560 056.

Verified

**Page No. 1/1,**

13/05/2015
DR. MANJESH .L
ME (Civil Engg ), Ph D MISTE MIRC
Associate Professor
Department of Civil Engineering
Bangalore University Jnanabharathi Campus
BANGALORE- 560 056
e- mail. manjeshl@yahoo.com

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E-mail: centrans9@gmail.com

JNANA BHARATHI
BANGALORE - 560 056

BUB/CTE/2015-16/

Date: 08-05-2015

**1. TEST REPORT ON REINFORCEMENT STEEL:**

**Sub**: Testing of Reinforcement Steel of diameter 10mm.
{Project*: Improvements to Roads and Drains in BB Nagara Cross roads Kodigehalli in lieu of improvements to roads and drains in (Pooviah Residence) and providing CC Road at (Shivananda and Muniraju Residence) Maruthinagara Kotihosahalli in Ward No.08 Kodigehalli Sub-Division}

**Ref.**: Letter No.AEE/BN/QC/88/2015-16 dated 04-05-2015

Sample supplied to lab by: Assistant Executive Engineer,
Kodigehalli Sub-Division,
BBMP, Bangalore.

Name of the Contractor/Agency*: Sri.R.Vijyakumar, Contractor, Bangalore.

**TABLE – 1**

| SL No | Details | For 10mm | |
|---|---|---|---|
| | | **Test Results** | Min. Req as per IS 1786-2008 |
| 01 | Observed diameter of bar | **10.0mm** | 10.0mm |
| 02 | Observed Wt/m Length **Kg/m** | **0.622** | 0.567 |
| 03 | Proof stress/Yield stress, fy , **N/mm$^2$** | **560.0** | 500.0 |
| 04 | Bend/ Re bend Test | **Ok** | --- |
| 05 | Percentage of Elongation, % | **19.00** | 12.00 |
| 06 | Ultimate Tensile Strength **N/mm$^2$** | **624.0** | 545.0 |

* As furnished by Client.
The Results relate only to the items tested.

G R. HARISH
Professor
Department of Civil Engineering
Jnana Bharathi Compus
BANGALORE UNIVERSITY,
Bangalore-560 056.

Verified



Dr. MANJESH .L
ME (Civil Engg .). Ph D MISTE.MIRC
Associate Professor
Department of Civil Engineering
Bangalore University Jnanabharathi Campus
BANGALORE- 560 056
e- mail: manjeshl@yahoo.com

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★ ★ ★ ★ ★
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**BANGALORE UNIVERSITY**
**DEPARTMENT OF CIVIL ENGINEERING**

**Phone Off: 080-22961935 / 1946**
**E-mail: centrans9@gmail.com**

**JNANA BHARATHI**
**BANGALORE - 560 056**

BUB/CTE/2015-16/

**DATE: 13-06-2015**

## 1. TEST REPORT ON CEMENT CONCRETE CUBES:

**Sub**: Testing of Concrete Cubes (28 days Compressive Strength)
{Project*: Improvements to Roads and Drains in BB Nagara Cross roads Kodigehalli in lieu of improvements to roads and drains in (Pooviah Residence) and providing CC Road at (Shivananda and Muniraju Residence) Maruthinagara Kotihosahalli in Ward No.08 Kodigehalli Sub-Division}

**Ref.**: Letter No.AEE/BN/QC/88/2015-16 dated 12-06-2015

Sample supplied to lab by: Assistant Executive Engineer,
Kodigehalli Sub-Division,
BBMP, Bangalore.

Name of the Contractor/Agency*: Sri.R.Vijyakumar, Contractor, Bangalore.

### RESULTS OF COMPRESSIVE STRENGTH ON CEMENT CONCRETE CUBE SPECIMENS

Dimensions of Specimen : 150 X 150 X 150mm

Grade of Concrete* : $M_{20}$

**TABLE 1.1 :**

| Sl No | Location/ Identification * | Date of Casting* | Date of Testing | Age in Days | C/S Area in $Mm^2$ | Maximum Load in K.N | Compressive Strength ($N/mm^2$) | Avg. Value |
|---|---|---|---|---|---|---|---|---|
| 1 | 001 | 15-05-15 | 12-06-15 | 28 | 22500 | 520 | 23.11 | **23.186** |
| | 002 | " | " | " | " | 530 | 23.55 | |
| | 003 | " | " | " | " | 515 | 22.88 | |

*As Furnished by Client.
The Results relate only to the items tested.

AE-B

G.R. HARISH
Professor
Department of Civil Engineering
Jnana Bharathi Compus
BANGALORE UNIVERSITY
Bangalore-560 056.

Verified

**Page No. 1/1,**

13/06/2015
DR. MANJESH .L
ME (Civil Engg ), Ph D MISTE.MIRC
Associate Professor
Department of Civil Engineering
Bangalore University Jnanabharathi Campus
BANGALORE- 560 056.
e-mail manjeshl@yahoo.com

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JNANA BHARATHI
BANGALORE - 560 056

BUB/CTE/2015-16/

Date: 20-05-2015

## TEST REPORT ON WET MIX MACADAM MIX

(GRADATION TEST)

**Sub**: To conduct Gradation test on Wet Mix Macadam (WMM) Mix.
{Project*: Improvements to Roads and Drains in BB Nagara Cross roads Kodigehalli in lieu of improvements to roads and drains in (Pooviah Residence) and providing CC Road at (Shivananda and Muniraju Residence) Maruthinagara Kotihosahalli in Ward No.08 Kodigehalli Sub-Division}

**Ref.**: Letter No.AEE/BN/QC/88/2015-16 dated 18-05-2015

Sample supplied to lab by: Assistant Executive Engineer,
Kodigehalli Sub-Division,
BBMP, Bangalore.

Name of the Contractor/Agency*: Sri.R.Vijyakumar, Contractor, Bangalore.

## TEST RESULTS

**1. Gradation Test:**

**TABLE 1.1**

| Sieve Size mm | Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation) | Specified Limits as per MoRTH Specifications, IV Revision-2001 |
|---|---|---|
| 53.00 | **100.00** | 100 |
| 45.00 | **95.40** | 95-100 |
| 26.50 | **---** | - |
| 22.40 | **74.10** | 60-80 |
| 11.20 | **43.00** | 40-60 |
| 4.75 | **38.30** | 25-40 |
| 2.36 | **26.20** | 15-30 |
| 0.600 | **18.60** | 8-22 |
| 0.075 | **2.80** | 0-8 |

*As Furnished by Client
The Results relate only to the items tested

G.R. HARISH
Professor
Department of Civil Engineering
Jnana Bharathi Compus
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Bangalore-560 056.

Verified



DR. MANJESH .L
ME (Civil Engg ) Ph D MISTE.MIRE
Associate Professor
Department of Civil Engineering
Bangalore University Jnanabharathi Campus
BANGALORE- 560 056
e- mail. vmanjeshl@yahoo.com

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**DEPARTMENT OF CIVIL ENGINEERING**

Phone Off: 080-22961935 / 1946
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BANGALORE - 560 056

**BUB/CTE/2015-16/**

**Date: 11-06-2015**

**1. Bituminous Concrete.**

**Sub:** Testing of Bitumen Premix Sample.
{Project*: Improvements to Roads and Drains in BB Nagara Cross roads Kodigehalli in lieu of improvements to roads and drains in (Pooviah Residence) and providing CC Road at (Shivananda and Muniraju Residence) Maruthinagara Kotihosahalli in Ward No.08 Kodigehalli Sub-Division}

**Ref.**: Letter No.AEE/BN/QC/88/2015-16 dated 09-06-2015

Sample supplied to lab by: Assistant Executive Engineer,
Kodigehalli Sub-Division,
BBMP, Bangalore.

Name of the Contractor/Agency*: Sri.R.Vijyakumar, Contractor, Bangalore.

A. Type of Construction: **Bituminous Concrete.**

1. The bitumen content obtained after subjecting the sample for Bitumen Extraction test = **5.60 %.**

**2. Gradation Test**

**TABLE 1.1**

| Sieve Size, mm | Percent by Weight passing the Sieve from the sample supplied (Obtained Gradation) | Gradation requirement as per Table 500-18 of MORTH Specfications-2001 BC (Grading – 2) |
|---|---|---|
| 19.0 | **100** | 100 |
| 13.2 | **93.00** | 79-100 |
| 9.5 | **77.00** | 70-88 |
| 4.75 | **56.40** | 53-71 |
| 2.36 | **46.20** | 42-58 |
| 1.18 | **37.30** | 34-48 |
| 0.600 | **29.70** | 26-38 |
| 0.300 | **25.60** | 18-28 |
| 0.150 | **14.70** | 12-20 |
| 0.075 | **6.20** | 4-10 |

Note: * As furnished by Client.
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AE-B

G.R. HARISH
Professor
Department of Civil Engineering
Jnana Bharathi Compus
BANGALORE UNIVERSITY
Bangalore-560 056. Verified

**Page No. 1/1**

Dr. MANJESH .L
ME (Civil Engg ). Ph D MISTE.MIRC
Associate Professor
Department of Civil Engineering
Bangalore University Jnanabharathi Campus
BANGALORE- 560 056
e- mail: manjeshl@yahoo.com